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OUTLINES OF WORK FOR EACH SCHOOL YEAR

DIVISION A

SECTIONS 1 AND 2 (KINDERGARTEN — FIRST TWO SCHOOL YEARS)

Autumn Quarter. Subject: Homes. Topics: (1) homes of people; (2) of dolls; (3) of domestic animals; (4) of birds; (5) of plants and their seeds.

Winter Quarter. Subject: Commercial exchange that comes closest to the home, as grocer, milk-man, coal-man, ice-man. Source of their supplies, and how brought to us; transportation for provisions and for people: trains, sleighs, wheelbarrows, wagons, street cars (both elevated and surface).

Spring Quarter. Subject: Gardens. (1) Garden beds—shape and divisions; (2) trees and birds in garden; (3) animal life in ground and on plants.

Science or nature-study.—Areas around which the year's work centers: (1) garden; (2) the lakeshore; (3) the Midway; (4) South and Jackson Parks. Science observations: sun, clouds, rain, wind, frost. Seasonal changes: effect of frost on plant life, animals, and people. Daily changes of weather and effect on movements of people. Observation of movement of sun by noting through which windows we have the sunlight; gathering seeds and watching how they are distributed; watching habits of late birds; nuts, fruits, and vegetables classified according to the way they may be preserved and stored for winter; collections of cocoons, caterpillars, leaves, and seeds.

Winter Quarter: Winter landscapes; influence of wind, rain, and sun on snow-covered areas; which wind brings rain, snow, cold, moderate temperatures; formation of snow and ice crystals as they appear.

Spring Quarter: Relation of heat, light, and moisture to plant and animal life; comparison of vegetation at lakeshore, in garden and park; planting indoors as a preparation for outdoor

work; observations of work of earthworm outdoors and in a box with glass sides; collections of grubs and worms, and study of bees and ants at work; constant observation of special trees, noticing changes as spring comes on; direction of prevailing wind; effect of wind in park and garden.

Literature.—Autumn Quarter: Nonsense and Mother Goose rhymes: "The Clucking Hen," *Aunt Effie's Rhymes*; "Thanksgiving Day," by L. M. Child; "Jack Frost," by Hannah Gould; "A Visit of St. Nicholas," by C. Moore; "A Real Santa Claus," "Clouds," and "Leaves at Play," by F. D. Sherman; "The Magic Curtain;" "Story of St. Christopher;" "Story of the First Christmas."

Winter Quarter: "The Swan Maidens" and "How the Robin's Breast Became Red," by F. J. Cooke; "Little Table, Dish Up," from the Norwegian; "How Fido Carried the Milk," by A. E. A.; "Wizard Frost," "The Juggler," and "Hide and Seek," by F. D. Sherman.

Spring Quarter: "Hermes," by F. J. Cooke; "What Was Her Name," by Richards; "The Broken Wing," from the Norwegian; "Rhoecus;" "Peter at the Dike," by Cary; "I Know the Song That the Bluebird is Singing," by E. H. Miller; "Who Stole the Bird's Nest," by Child; "The Brown Thrush," by Larcom; "In a Hedge."

Gift-work.—Building with large blocks, houses, foundations, rooms, furniture; designing with tablets, floors, tiling, and oil-cloth; building with blocks and sticks—trains, tracks, wagons, car-barns, stores, counters, and cupboards; making garden fences and walls of sticks or blocks; marking off beds for planting in garden with lentils and sticks; making bird-houses; illustrating stories.

Handwork.—Christmas presents; paper-folding and pasting of doll and animal houses in simplest forms; work incidental to the celebration of Hallowe'en, Thanksgiving, and Christmas; grocery and milk wagons of heavy paper or wood; also street cars, trains, and sleighs; ice-picks and tongs; May baskets, tools of cardboard or soft tin boxes; bird-boxes and garden stakes.

Number.—Limitation of number decided by space and dis-

tribution of materials; through number a child's first definite ideas of limitation are gained; recognition of numbers in groups of 2, 3, 4, 5, and 6 may be gained during the year, such as: two partners, three on a committee, four inches, five or six inches in building, etc.

Modeling.—Autumn Quarter: Balls, marbles, tea rests, seeds, fruits, flower-pots, nests, pods.

Winter Quarter: Milk-cans, bottles, measures, crocks, and pitchers modeled; also winter fruits, blocks of ice; ice-picks and tongs.

Spring Quarter: Birds, nests, eggs, worms, grubs; seeds, twigs, vegetables.

Painting.—Fall landscapes; experiments in all-over washes and flat brush designs in color for decorations on Christmas gifts; pictures of fruits, leaves, and seeds, and designs made by grouping, and distributing these forms in limited spaces; illustration of stories; landscape at beach, in garden, and park; single trees; flower-beds; birds; spring vegetables.

Cooking.—Given only as a social industry, and employed by the teacher with the children as the mother in the home might use it. Its special function here is to prepare for a Thanksgiving celebration, making such simple things as grape juice, jelly, and cookies; or Christmas cookies, candy, and popcorn balls.

Rhythm and games.—Simplest skipping, marching, and running; romping games of cat and mouse, skip and hop tag, changing chairs; fall nature games; dramatizing Hallowe'en, Thanksgiving, and Christmas stories. Clouds and snow; trains, street cars; sliding and skating; dramatizing stories selected and planned by the children. Outdoor romping games; growing of seeds; clouds, rain, sun, butterflies; birds and building nests; bees and flowers; dramatizing stories.

Music.—Exercises in tone-placing through plays of steam-car whistles and bells; simple scale songs and exercises; appropriate songs from kindergarten and primary song books by Eleanor Smith, Jessie Gaynor, and Patty and Mildred Hill.

DIVISION B

SECTION 3 (THIRD SCHOOL YEAR)

For the sake of convenience in following a sequence in the different branches, an attempt is made to plan the work under the headings of history, geography, etc. It must be understood, however, that the division is *only* in the outline, since in the children's minds there is no such distinction.

Nature-study.—Autumn Quarter: Landscape work: (1) As a convenient location for daily study, the children of this Section will take the school garden. Here they will note the most obvious autumnal changes—first and last leaves to fall; ways of scattering seeds; departing birds; animal shelters, such as cocoons and nests; seed shelters, such as fruits, grains, and nuts. (2) They will make bi-weekly paintings to show changes in landscape color and bind them in book-form.

Winter Quarter: Landscape work: (1) Observation of the characteristic shape of two or three common trees, such as the willow, elm, oak, etc. (2) Habits of winter birds. (3) Records in painting of winter color.

Applied science: Cooking: Work on evaporation, noting that water is lost in drying fruits and replaced by boiling in water.

Spring Quarter: Landscape work: (1) During constant excursions into the garden and park the children will note the various signs of spring—returning birds, first butterflies, earthworms, budding trees and flowers, bushes and weeds. A large calendar of these events will be made. (2) A record will be made every second week of the spring changes in color.

Applied science: Gardening: Experiments in germination will be made to show a plant's need for heat, light, water, and food. They will lay out a miniature farm, planting the appropriate grains and vegetables.

Cooking: In making candy the children will notice the dissolving sugar and consequent hardening of the thickened liquid.

Geography.—Autumn Quarter: Meteorological observations. (1) Record of sunshine, clouds, rain, frost, and wind. (2) Direction of winds. (3) Reading of thermometer. (4) Noting,

in a large way, the shortening days and lengthening nights. In observing the directions of the winds the children will learn and fix the points of the compass by finding out the directions of their homes, the parks, lake, down-town, and various places visited.

Winter Quarter: (1) Continuation of meteorological observations; learn freezing-point of water on the thermometer. (2) In connection with a study of building materials, the children will be able to recognize several minerals, such as limestone, sandstone, and quartz. If possible, they will visit one of the quarries within reach. (3) The consideration of the shelters of peoples of extreme climates will necessarily lead to thinking of their general physical environments. It will be possible for the children to build some picture of the great barren or snowy fields of the polar regions and the luxuriant vegetation of the tropics. The study of Indians will bring to their minds the different types of country which they have seen, grassy prairies or forested hills.

Spring Quarter: (1) Continuation of meteorological records; note lengthening days. (2) We shall visit a farm to see the arrangement of buildings, care of animals and typical spring activities.

History.—During the first two years of the children's school experience, following the Kindergarten, the attempt will be to help them understand the activities around them under the general headings of food, clothing, and shelter. The work for the first year will come largely under the third topic.

Autumn Quarter: The children will be asked to show with building-blocks, stick-laying, and chalk-lines on the floor something of the appearance and plans of their own homes in city or country. They will be asked to make plans for a house that they can make themselves—a small individual playhouse, with only the absolutely necessary rooms, possibly kitchen, bedroom, and living-room. The first models of these houses will be either in paper or light cardboard. As much individual freedom in planning as is consistent with simplicity will be encouraged. During this time they will visit houses and buildings in process of erection, and observe the various kinds of work required. As soon as their plans are sufficiently clear, they will begin the making of their playhouses, using prepared lumber and boxes.

Winter Quarter: Playhouses will be finished. In addition the children will study the various building materials, look into the lumbering industry, and visit a quarry and brick-yard. In order to give a little more color and significance to their thought of their own homes, the building materials and kinds of shelters used in extreme climates will be touched upon—as for instance, the snow houses of the Eskimos and rush huts of the tropics. The shelters and general life of the American Indians will be gone into in more detail. In this connection the children will visit the Field Museum.

Spring Quarter: During this quarter the playhouses will be decorated and furnished. The greatest possible freedom will be given in the selection of materials and making of plans. If time permits, buildings for the sheltering of the various farm animals will be made and placed in the miniature farm in the garden.

Mathematics.—Autumn Quarter: The making of the playhouses requires much excellent number work. Most of the number work is incidental to this making, and it is only when the opportunity seems fitting that certain facts or processes are fixed by special drill. It is hoped that by the end of the quarter the children will have learned to use: (1) all combinations of numbers under 12; (2) units of measure, inch and foot; (3) half inch and half foot; (4) the reading of the thermometer which necessitates counting to 100 by 1's, 2's, and 10's.

Winter Quarter: The cooking in this quarter brings in another kind of number. The children will use most generally the cup as a unit of measure, and will become familiar with one-half, one-third, one-fourth, two-thirds, and three-fourths. They will also learn to tell time in connection with sun-rising and setting.

Spring Quarter: (1) More attention will be given to the writing of numbers and the signs of addition and subtraction. (2) Measuring in feet and yards in garden.

Reading and language.—Autumn Quarter: The children will see constantly words and sentences in connection with their work on the blackboard. Through much repetition they will learn to recognize some words and be able to follow simple

written directions. Work in phonics will be begun and carried on throughout the year. They will learn the sounds of all the consonants, and many of the simpler combinations of vowel and consonant, such as *ig, in, et, it, ill*, etc.

Winter Quarter: More stress will be laid on the children's repeating the board work. Recipes and directions will be written and printed in large chart form.

Spring Quarter: The children will begin to read from printed slips and simple readers. They will make and have printed a kind of calendar of the various "signs of spring."

During the year they will dramatize Mother Goose rhymes, fables, "The Three Bears," "Persephone," and "The Sleeping Beauty." They will hear portions of *Hiawatha*, and many short poems from the *Child's Garden of Verse*, *The Posy Ring*, and *Lear's Nonsense Book*.

Writing and spelling.—Autumn Quarter: The writing of the quarter will be entirely board work, and will consist of words and short sentences and numbers in connection with other work. There will also be much free-hand exercise.

Winter Quarter: Same as Fall, with free-hand exercises extended to paper with large crayons or charcoal.

Spring Quarter: Short records will be kept of cooking and weather observations.

Whatever of spelling there is during this year will be in this reproduction of words written on the board, and in the making of words in phonic drill. It is probable that by the end of the year the children will have mastered the spelling of many of the common words through constant repetition in writing and reading.

Music.—One of the first and principal objects with these children is to train them to *hear* musical tones. They will learn to sing the scale with syllables. They will write the scale and simple scale songs. The seasons, festivals, and general work in the grade will determine the songs to be learned by rote.

Clay-modeling.—Autumn Quarter: During the first months with clay it is the desire chiefly to give the children plenty of experience with a plastic material. They will experiment in

making some toy, possibly a pipe for soap-bubbles. Later they will begin some bowl-shaped dishes for Christmas presents. These will be modeled, painted, glazed, and burned.

Drawing, painting, and design.—The work in color will follow the seasonal changes throughout the year. Every other week a landscape picture of the day will be painted and put in the portfolio made for the purpose. Illustrating the history and literature the children will have much big, free work on the blackboard, as well as with charcoal and paints. During the Winter Quarter they will have one period each week on the beginnings of design, emphasizing not so much the selection and making of the units as the repetition and balance which especially please children of this age. These designs will be used chiefly for decoration of portfolios, valentines, and invitations, or luncheon menu cards.

Gymnastics.—The children will have chiefly free gymnastics and recreative games; rhythmic running, skipping, hopping, and jumping; marching in file, by twos and by fours; rhythmic play with bean bags and balls; outdoor games suitable to their age; swinging on ropes, rings, and bars to develop grip muscles.

Manual training.—Autumn Quarter: The children will make individual playhouses, using prepared lumber and boxes whenever possible.

Winter Quarter: This term's work will consist of finishing the playhouses, and making the furniture and decorations for them.

Spring Quarter: For the farm in the garden they will make various buildings for animal shelters, such as barn, sheep-fold, chicken-coop, and pig-sty.

Cooking.—Winter Quarter: (1) Drying of fruit as an introduction to simple work on evaporation. (2) Stewing of dried fruits, replacing water lost by evaporation. (3) Stewing of fresh fruits; cranberry sauce. (4) Comparison of ways of cooking, time in cooking, and flavor of different kinds of apples. (5) Baking potatoes.

Spring Quarter: (1) Making of barley candy, watching the dissolving of the sugar, the thickening of the boiling liquid, and the change of color that takes place. (2) Making candy from

maple sugar. (3) Making of lemonade, cocoa, fruit sandwiches, and ice-cream. During the Spring Quarter the children will cook something for their own luncheon, and serve luncheon to themselves and guests once in two weeks.

DIVISION B

SECTION 4 (FOURTH SCHOOL YEAR)

This section shares with all the School the one great problem, namely, to teach children how to live helpfully and joyously in the school community. The final test of the efficiency of the work lies in the reflection of this spirit in the home life of the children.

Morning exercises; care of corridors, garden, and grounds; and interchange of pets, furnish the daily common interest of the entire school. Cooking, literature, plays, and games are of social value in themselves, giving the children material for entertaining. The particular interests of this room will be centered in the questions of (1) how we in Chicago get food and clothing; (2) what the effects of seasonal temperature variation are upon a swamp, lakeshore, and garden; and (3) the making of Christmas presents in the fall, and a garden in the spring.

History.—Stories will be told of how primitive people get food and clothing, handwork will be done, and industrial excursions will be taken, all with the hope of making more simple and intelligible our complex modern methods of supplying these essentials of life.

Fall Quarter: Making toy grocery stores and furnishing them with a variety of foods. To study means by which foods are transported to retail houses, we shall visit a wholesale house, South Water Street, Rush Street docks, and express depot at Englewood Union Depot. Trip recalled by remodeling toy groceries into wholesale houses, with addition of docks, etc. Visits to or descriptions of, sources of food supply: orchards, gardens, fisheries, dairies, etc. The final toy model will be completed to send with the Christmas tree to another group of children. The children will be told, and will read from printed slips, stories of

typical primitive people, the Chiquitos of South America, Dakotas of North America, and Eskimos of Greenland. (See "Geography" and "Reading.")

Winter and Spring Quarters: Study of clothing: Experiments with spinning, weaving, and dyeing (see "Textiles"). Dress of primitive people as modified by climate illustrated through dressing of dolls. Stories of shepherd life: Abraham, David. Scotch shepherds and their dogs, Endymion.

First six weeks: Construction by each group of an Eskimo village, one representing a summer, the other a winter scene. Groups will interchange explanations and descriptions of the constructions through oral and written stories and descriptions. Second six weeks: Study of Arabs as typical and picturesque shepherds through stories, reading, and construction of a theater with shifting scenes and puppets for plays. Arabian landscape, costumes, tents and their furnishings, flocks and camels, to be worked out during textile, modeling, and geography time.

Geography.—The geography is another phase of the history during fall and winter, and in the spring divides its time with science.

Autumn Quarter: Lake Michigan as a factor in transportation of foods. Trips to harbor, lighthouse, life-saving station in Jackson Park, and shipyards in South Chicago. On all trips keep general directions in mind. Upon return model in sand, adhering to actual directions therein. Written records where these are profitable.

Winter Quarter: A study of typical northern and southern peoples and their surroundings. The contrast emphasizing pupils' immediate environment. Types chosen: Eskimos and Arabs. Geographic images strengthened and charified by use of pictures, lantern slides, stories, reading lessons, modeling, drawing, and painting. (See "History.")

Spring Quarter: Modeling in sand of areas visited, followed by diagrams on paper. Use of map conventions as to cardinal points. Diagrams will include school and vicinity, Jackson Park, Wooded Island, life-saving station, south shore, Stewart Ridge,

Dune Park, harbor and river mouth, South Water Street, and Marshall Field & Co.

Nature-study.—Throughout the year the seasonal changes due to variation in temperature will be watched upon three areas: our garden, which will be the especial tract chosen for this section; a swamp at Stewart Ridge; and the lake beach at south shore. The latter are of sufficiently easy access to be visited once a month. Explanations for the observed changes will be derived from a daily temperature record, noting especially the relation of the temperature curve to the freezing-point. Once a month the temperature will be taken six, twelve, and twenty-four inches underground, to explain hibernation, etc. With the weekly temperature charts and landscapes, together with the monthly summaries of wind and sunshine, a frieze will be made about the room illustrating graphically the seasonal history. The summaries of sun, clouds, and storm will be made with colored strips one inch wide and twenty inches long, so that one square inch will equal one day.

Autumn Quarter: The garden: Gathering of vegetables; how plants store food; use of same as food supply for man. Vegetables stored for spring planting, radishes, cabbages, potatoes, and sugar beets; insect life studied through depredation to the plants; also in various stages of preparation for winter. Swamp at Stewart Ridge: study of typical swamp forms to be transferred to the "water garden" (a cement-lined basin about 2 feet deep and $3' \times 5'$, located in the garden). Hibernation of water animals watched here; cocoons, eggs, galls, etc., carefully prepared for observation during winter and spring.

Winter Quarter: Study of soil from swamp, beach, and garden, roughly determining vegetable and mineral matter; origin of each soil which will lead to some study of stones. Individual collections of minerals; these to be enlarged from year to year as children continue through the school. Relative power of these soils to hold heat and moisture. The above tests on soil are to be applied to preparation and selection of soil for garden to be made as early as weather permits.

Spring Quarter: Laying out of the garden. The previous

year the children discover the plants' need of heat, light, and moisture; determination more exactly of ranges in amount of these necessities; noting of striking adaptations to meet extreme conditions; visits to sand-dunes; planting of potatoes and the roots of radishes, cabbage, and beets; planting of seeds where absorption of food from seeds is marked; examining of roots of early plants; making drawings of these; examining of roots of late plants; making drawings of these; inferences.

Cooking.—Autumn and Spring Quarters: Gather, grind, parch, and pop sweet corn, pop corn, and field corn. Determine the kind best for each process. Cooking otherwise will be of a purely social nature. Prepare simple dishes, as corn pone, rice pudding, toast, cornstarch pudding, cottage cheese, butter, custard, eggs, salad, sandwiches, and cocoa. Learn to set a table, serve, clear a table, and wash dishes.

Mathematics.—Drill will be given at the time that the need for a fact or process arises. Aim to acquire accuracy and skill in following processes: (1) counting, reading, and writing of figures to 100; (2) recognition of pieces of money; (3) adding of two columns of figures; (4) counting by 2's to 100; (5) adding of simple mixed numbers; (6) use of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$ of one thing and of a few things; (7) use of gram and square inch as units. These principles and relations are involved in actual work to be done as follows: (1), (2), and (3) in keeping of accounts to the amount of \$1; (4) in reading thermometer; (5), (6), and (7) in making summaries of sunshine and wind for each month; (6) making of Christmas presents.

Winter Quarter: The above continue through the year, and, in addition, (1) making of plans to a scale; (2) reading and writing of dollars and cents to \$2; (3) tables of 2's, 3's, 4's, 6's, and 12's to 24; (4) such addition of three columns of figures as is required in accounting for \$2. Actual work involving (2) and (4) is accounts; (1) required in making Eskimo and Arab scenes; (3) used in making mineral boxes.

Spring Quarter: Above continued and construction of square, oblong, right triangle, equilateral triangle, and hexagon will be needed in laying out the garden.

Woodwork.—Autumn Quarter: Toy grocery stores, etc., made in connection with the history work (see above). A Christmas present from the pupil's own initiative to be planned, made, and given away.

Textiles.—Winter and Spring Quarters: First six weeks: Stories of Eskimos, North American Indians, and Chiquitas of South America. Each child will dress a doll to represent one of these peoples. Compare primitive man's limited possibility with our wide possibility of selection of material. Prepare materials for weaving. Send to Washington for silkworms to watch their spinning of cocoons, etc. Second six weeks: Dye and weave rugs, tents, and saddle-bags for Arabian scene (see "History" above). Oriental rugs will be examined, and the children will experiment to produce same weaving effect. "Pulled rugs" of burlap and wool will be made to imitate eastern rugs. Portfolios to hold the writing, drawing, and painting of the year will be made of coarse linen or burlap decorated with cross-stitch.

Drawing, painting, and design.—Free-hand work: Action of figure—use of large washes, and three tones of dark and light are the technical points emphasized in this section. Drawing and painting will be used freely throughout the year to intensify observation, express individual impressions and emotions, and record facts wherever form and color are the prominent features in other subjects.

Design: Winter Quarter: Rhythm; balance; development of symbols; use of two tones in weaving; use of colors of two intensities; application; patterns for textile work given in detail above.

Modeling.—Illustrate stories in low relief; make puppets to be used on the Eskimo and Arabian scenes; these to be baked to make them more durable.

Reading.—Children will read daily from books, printed slips, and script. They will own *Eskimo Life*, by Mary E. Smith, and will use from the library *Lights to Literature*; *The Blodgett Reader*; *Around the World*, by Carroll; *Heart of Oak Books*, Vols. I and II; printed slips adapted from authoritative sources,

to get information in history, science, or geography; written and printed directions for work.

Writing.—As in the previous year, every effort will be directed toward legibility and freedom of movement. Spelling will be taught through repetition in use of words and by keeping in a “dictionary” lists of words which have been functioned by legitimate use classified under their proper letter. Such a book serves for the children as a means of independent reference, and for the teacher as a record of progress.

English.—This subject will be taught by insistence upon correct speech, through hearing of fine literature and by daily writing as a means of expression. Definite points to be made are: use of period at end of sentence and of abbreviation; use and meaning of question mark; meaning of apostrophe and quotation marks; use of capitals in proper nouns and at the beginning of sentences or of direct address.

Music.—Rote song-singing; writing of simple melodies; analysis of two-, three-, and four-pulse measure; names of lines and spaces; placing of bars; time symbols (whole, half, quarter, and eighth notes); songs for school festivals, seasons, and such as correlate with the history work of the grade.

Physical training.—Incentive to growth and blood formation; plays and games; imitation games, based on sense-perception, and quick decision, as “Adam and Eve had Seven Sons,” “Lame Peter.” Sack and ball-tossing and catching; outdoor recreation.

DIVISION C

SECTION 5 (FIFTH SCHOOL YEAR)

The basis for the work of the year is the community life of the children. The aim is to present the best conditions for them to gain social experience, and to use this experience for the good of the community. To this end the children will be organized into groups engaged in social activities and studying some phases of the social occupations of the environment.

Activities and occupations which will be carried on during the year are: (1) walks in the park and excursions into the sur-

rounding country; (2) gardening; (3) cooking, baking, preserving; (4) pottery; (5) textiles; (6) woodwork; (7) housekeeping and care of rooms, halls, and grounds; (8) a store, as a distributing point of supplies; (9) celebrations; (10) parties and daily morning exercises.

Subject-matter.—The children will be encouraged to acquire knowledge from every available source in order to carry on these activities in the most effective manner, and also in order to appreciate some of the social activities which they see around them. For this purpose it will be necessary to visit shops, factories, markets, docks, and wharves in the vicinity, where similar occupations are engaged in, and to visit museums and collections of all kinds. It becomes necessary to perform experiments, to use books and pictures for information, as well as objects and specimens from the school museum. Each activity has a scientific and social aspect, both of which will receive due attention. Records of the work will be kept in the form of finished articles, plans, collections of objects studied, written notes, essays, drawings, and paintings.

Nature-study.—The children of the third grade will have a plot of ground in Jackson Park (north end of Wooded Island) which they will count as their own, to which they may go once or twice a week during the fall and spring. Through frequent painting they will study the landscape as a whole. Each child will select one tree for close study throughout the year. He will compare his with those selected by the other children, and learn to distinguish the most common trees in our neighborhood.

Autumn Quarter: Trees: shape, characteristics of bark, leaves. Plants: seeds and their dissemination; how plants come back to us in the spring; a study of annuals, biennials, and perennials. Animals: birds and their habits as found on our chosen plot of ground will form the basis for studying about a dozen of our common birds; flight and structure of bill and claws in relation to food-getting. Insects: life and habits of the bees, ants, butterflies, grasshoppers, and such bugs and beetles as are found in the garden or on excursions. Temperature: a study of some of the causes which produce the particular aspect of nature which is studied; charts showing average temperature for each month will

be interpreted by help of the landscape pictures painted during each month; temperature of the earth at the depth at which insects are found will be recorded.

Winter Quarter: Trees: buds: condition in which buds are left to overcome dangers of frost; growth of tree for one year noted. Plants: study of starch (see "Cooking"). Animals: winter condition of animals; hibernation, change in covering, migration, hibernating animals may be watched, such as the frog, snail, and turtle. Visits to the Field Columbian Museum will help in the study of color adaptation to environment and on the whole subject of change in covering. Temperature observed and recorded in the same relation as in the Autumn Quarter.

Spring Quarter: Botany: the tree; returning sap, opening of buds, blossoms. Plants: germination; the relation of the growing plant to soil, water, light, and air. Children will have a garden for vegetables and flowers. They will prepare the soil, plant and care for the garden. Excursions to Beverly Hills and to the north shore for wild flowers. Animals: relation between bird, insect, and plant life. Frogs: the development from eggs to full-grown animal will be watched in the aquarium. We shall have a bee-hive in the garden, which will give the children an opportunity to watch the work of the bees. Other insects, such as the ants and butterflies, will be studied closely.

Applied science.—Autumn Quarter: In relation to drying of fruits and to making of pottery, experiments in evaporation will be performed.

Winter Quarter: The cooking will demand various experiments (see "Cooking"). The history work will call for experiments with metals, which again imply the study of heat. Experiment connected with work in dyeing (see "Textiles").

Spring Quarter: In the preparation of the garden a study of soils will be made; germination, etc. (see "Nature-Study"). The history and geography call for the study of the compass.

History.—Basis (1) on observations of environment of trade; South Water Street; boats and freight cars loading and unloading; stores; children's own desire to barter and exchange; (2) on children's occupations in making boats and carts, and keeping

a store for supplies. Beginnings of trade, of exploration, and of travel; development of means of transportation and of a diversity of arts; expansion of industrial, social, and political life. As concrete illustrations of the era of early trade and discovery, some phases of Greek and Norse history have been selected for study.

Autumn Quarter: Geographical conditions which encourage early navigation and commerce— islands, harbors, overproduction of some commodity, desire for other products. Industries and occupations of the early Norse and Greek. Development of trade. How trade was carried on; means of transportation by land and water. Discoveries and expansion of geographical knowledge. The Vikings, their mode of life. Discovery of Iceland, Greenland, and America (Vinland). The Homeric Greek— based on a study of the *Odyssey*.

Winter Quarter: Standards of measurement, currency, use of metals. The children make furnaces, melt metals (lead and tin), make molds, and carry on the whole process of molding in lead and tin. Arrow-points, spear-points, battle-axes, money, weights, etc., are made. Social condition of the people, classes of people, the king, the assembly, games and sports, warfare and warlike conditions; ideals of the time, and religious beliefs.

Spring Quarter: The story of Columbus will be told as embodying the spirit and aims of exploration. For comparison, stories will be told of modern explorers, as Nansen, Livingstone, Stanley; their equipment and aims as compared with those of the ancient explorers.

Geography.— Autumn Quarter: (1) The neighborhood. On all excursions the natural features will be observed. The lake-shore— shore line, bluffs, different kinds of beaches. Beverly Hills— the ravines, brook-basins. Swamps— ridges with trees. (2) Typical environments. Mountain landscapes; Norway and Greece as types; narrow valleys, rapid rivers, falls, lakes; forest-covered, barren, and snow-covered mountains. Coasts: bays, headlands, fjords, islands, harbors. Animal life in the northern forests; animals of the northern seas. Study of such typical environments with relation to their social occupations, fishing— lumbering, hunting, trade. (See "History.")

Winter Quarter: Given typical physiographical features, the children will plan routes of travel by sea and land; construct maps in sand and on blackboard. These maps will first be made to record imaginary trips, and later the journey of the Norsemen to America, the caravan travel through the deserts, Marco Polo's journey, Prince Henry's journeys. Columbus' discovery of America.

Spring Quarter: Picture Arctic scenery with Nansen's journey, and tropical scenes with Livingstone and Stanley. The earth as a ball will be introduced with the study of Columbus, and the different oceans and land masses noticed with relation to one another. The children will construct simple compasses, and learn to use them on their excursions.

Cooking.—Autumn Quarter: Drying of grapes to make raisins; quantitative work on evaporation under different conditions; making of jellies.

Winter Quarter: Preserving of meat and fish by salting, smoking, and drying, to illustrate work in history. Study of starch: starch test; different starch grains seen under the microscope; effect of heat on starch; thickening power of starch as seen in making of white sauce; starch and gluten found in flour; making bread; water, starch, and cellulose obtained from the potato; ways of cooking the potato.

Spring Quarter: Composition of carrots as a type of sweet-juiced vegetable; change of starch to sugar shown by the development of a sweet taste when starchy foods are masticated; classification of vegetables according to their composition into starch, sweet, and strong-juiced vegetables; combining of white sauce and vegetable in the making of cream vegetables and vegetable soups; serving of lunches.

Mathematics.—If the children are actually doing work which has social value, they must gain accurate knowledge of the activities in which they are engaged. They will keep a record of all expenses for materials used in the school, and will do simple bookkeeping in connection with the store which has charge of this material. In cooking, weights and measures will be learned. The children will also keep accounts of the cost of ingredients.

Proportions will be worked out in the cooking recipes. When the children dramatize the life of the trader, in connection with history, they have opportunities to use all standards of measurements. Number is demanded in almost all experimental science work; for instance, the amount of water contained in the different kinds of fruits, or the amount of water evaporated from fruits under different conditions (in drying fruits). All plans for woodwork will be worked to a scale and demand use of fractions. When the children have encountered many problems which they must solve in order to proceed with their work, they are ready to be drilled on the processes involved until they gain facility in the use of these. The children should be able to think through the problems which arise in their daily work, and have automatic use of easy numbers, addition, subtraction, multiplication, short division, and easy fractions.

English.—Literature: The children will be told several Norse sagas of the Vikings; stories from the saga of King Harold the Fair-Haired, and the Volsunga saga; the *Odyssey*, parts read by children from Palmer's translation, parts read or told by the teacher; Norse myths: "Thor's Journey to Jotunheim," "The Death of Balder," "The Gift of the Dwarfs;" Greek myths: "Apollo and the Python," "Athena and Perseus," "Hermes and the Cave of Winds;" fairy-tales to be told to the children: "The Land East of the Sun and West of the Moon," "The Seven Swans."

Oral reading.—Poems will be studied with a view to rendering them in a beautiful way to others: "Dark Brown is the River," "Windy Nights," "The Shadow," "The Lamplighter," by Robert Louis Stevenson. The children will dramatize scenes from the *Odyssey* and from the Volsunga saga; also many of *Æsop's Fables*.

Reading.—For some of the children considerable phonic drills and reading of very simple stories will be necessary. Others will use silent reading mainly for study in science, history, and geography, oral reading being used only for social purposes. At the end of the fifth year in school (counting two years in the kindergarten) the children should have acquired ease in reading

whatever thought-matter is adapted to them, and in giving an intelligent oral rendering of the same.

Writing.—The children will have many opportunities to feel the need of writing, which will cause them to use it for reasons which they themselves will think valid. Written expression will be used in the following instances: (1) note-taking (*a*) while experimenting, (*b*) while on excursions, (*c*) while studying books; (2) notes written up to present to the class; (3) dictation: (*a*) recipes for cooking, (*b*) directions for experiments; (4) original stories and verses; (5) invitations, letters; (6) to give direction for work to other children. In writing, the pupil needs many words which he cannot spell. The teacher writes them on the blackboard, or the child looks them up in his “dictionary”—a notebook in which each child writes the words he has misspelled or asked for in previous lessons. This dictionary, consisting of words which the child actually needs and uses constantly, will become a spelling-book, if so it may be called, the children often taking it home to learn the words. When a paper is read aloud and the class does not gain the thought which the writer desires to convey, a reconstruction of the language may be necessary. Certain rules of grammar will be given. The use of punctuation marks is discovered, and rules for the use of capitals, etc., are established.

Woodwork.—Autumn Quarter: Toy boats, carts, bridges. For Christmas gifts: library furnishings—calendar stands, thermometer stands, ink-stand and pen-tray, envelope-opener and paper-cutter, blotting-pads, etc., book-racks, small waste-paper baskets. Free choice is given to the children with regard to articles made, kind of wood, and design.

Spring Quarter: Desk furnishings for the school, repeating some of the pieces made during the Autumn Quarter to leave as gifts for each teacher's desk.

Textiles.—Autumn Quarter: Use of grasses, twigs, leaves, corn husks, and other primitive fibers in the making of baskets and mats; sewing of bags for school purposes.

Winter Quarter: Experimenting with the weaving, braiding, and sewing processes, and application of design so dis-

covered in the making of bags of jute; dyeing of the jute fibers with vegetable colors; preparation of flax fiber; spinning.

Clay-modeling.—Jars and trays for Christmas presents. Study where clay comes from; uses of clay; effect of heat on clay.

Painting and drawing.—Successive paintings of the landscape as a whole, trees, animals, etc., where color or outline demand study. Scenes illustrative of Norse and Greek life. Characteristic scenery of Norway and Greece. Stories and fairy-tales illustrated. Design applied to pottery, woodwork, book-covers, and textiles. Spacing, rhythm, balance. Three hues of dark and light. Color: two intensities. Method: unconscious exercise of these principles.

Music.—Rote song-singing; sight-reading exercises in two-, three-, and four-pulse; notes and rests; simple melodies written; six-pulse rhythm analyses; original songs; songs composed by the children during the past year; songs to be learned during the year.

Gymnastics and dancing.—Special attention to carriage and poise of body. The exercises and games are such as to require finer co-ordinations. Marching: (1) by file; (2) by column; (3) sideways, forward, march to command. Apparatus: traveling on horizontal beams, bars and ladders (never to the point of fatigue); jumping (height). Plays and games: to lower reaction time between definite sense-perceptions and definite action; example: "White and Black," "Plump Sack."

DIVISION C

SECTION 6 (SIXTH SCHOOL YEAR)

During the previous years the children have been getting acquainted with their environment and know, to a certain extent, what the prominent features are; but the important characteristic movement—change—has not been emphasized. In the fourth grade the children study the growth of Chicago, not as a closed book, but as an interesting progressive drama worthy of

close attention. It is necessary (1) to continue the observation of natural phenomena with the problem of adaptation of structure to environment; (2) that a study of the present physiographic condition be made, for Chicago illustrates man's struggle.

Nature-study.—Autumn Quarter: I. Field work: The excursions will form one of the basic points for the study of Chicago: (a) Wooded Island visited weekly; (b) south shore; (c) north shore at Glencoe; (d) neighboring swamps; (e) Beverly Hills. Special points: (1) Comparative study of plant life: (a) identification of known species; (b) recognition of new species; (c) note especially: (1) where found, i. e., the nature of soil; (2) mode of growth—reason for it; (d) dissemination of seeds. (2) Animal life: (a) bird life; identify and study habits; keep chart showing migration; (b) insect life: insect injuries, cocoons, etc.

II. Weather-record: Special points: (1) Slant of sun's rays; measurement taken weekly by skiameter. (2) Average temperature: daily record taken at 9, 11, and 1 o'clock. (3) Direction of wind at same time; relation of direction of wind and slant of sun's rays to temperature.

III. (1) Planting of bulbs for spring and winter blooming; (2) filling window-boxes; (3) gathering products of garden.

Applied science (see "Woodwork").

Winter Quarter: (1) Weather records: continue autumn observations and landscape work. (2) Winter birds: source of food. (3) Buds: mode of protection. (4) Twigs of common trees: (a) comparative growth of several seasons; (b) protection from frost.

Applied science:

I. Prehension of food: (1) comparison of prehensile organs; (2) nature of food; (3) way of obtaining it.

II. (1) Examination of systems of heating and ventilation; relation of volume of fresh air to volume of air to be heated and kept pure; experiments showing the effect of poor ventilation on air. (2) Heat: experiments showing (a) expansion, (b) radiation, (c) conduction.

III. See "Cooking" and "Metal."

Spring Quarter: (1) Charts showing (a) return of birds; (b) opening of buds; (c) insect life; (d) flowers. (2) Excursion to (a) Wooded Island weekly; (b) south shore; (c) Beverly Hills; (d) Dune Park; (e) Fraction Run; continue autumn observations. (3) Prepare and plant garden. (4) Perform experiments to account for character of growth in different areas: (a) the relation of light and heat to growth under perfectly natural conditions; (b) germination and rate of growth in various soils, conditions similar; (c) effect of roots on rock; (d) way of taking moisture; (e) relation of moisture to growth of roots.

Applied science.—See “Woodwork” and “Textiles.”

Geography.—Autumn Quarter: I. First six weeks: Special point: agencies which change topography. Excursions to (1) South shore: (a) formation of sand bars, lagoons, swamps, and ridges; (b) reason for piers; (2) Glencoe: (a) formation of cliffs and ravines; (b) river-action; (c) character of beach; (d) piers; (3) swamps: conditions for formation and change; (4) Dune Park: (a) formation of dunes and swamps; (b) cause of succession of dunes; (5) Beverly Hills: Special features—forests, wide ravines, swamps, and prairies.

II. In connection with history: (1) The St. Lawrence and Mississippi basins; (2) Geography and topography of Illinois: (a) the old river routes; (b) appearance of the country; (c) routes to the East.

III. Second six weeks: Lumbering (see “Woodwork”).

Winter Quarter: (1) History: St. Lawrence and Mississippi basins, with special emphasis on the Ohio basin; (2) mining (see “Metal”).

Spring Quarter: (1) Excursions: Special point—ravines: (a) Thornton; (b) Beverly Hills; (c) Fraction Run; (2) typical river basins; (3) industrial study of Mississippi basin: (a) relation of topography and climate to the industries; (b) location of (1) cotton belt, (2) mining regions, (3) food belts of all kinds, (4) forests, etc.

History (see *Elementary School Teacher* for May, 1905, for fuller outline.)—Having studied in the earlier years some of the

conditions that bring people together in a city, in the sixth year we trace the growth and development of our own city. The approach to the study of Chicago is through the consideration of the French explorers and early settlers of the Northwest.

Autumn Quarter: I, (1) Early French settlers: their motives, religion, adventure or acquisition of territory; (2) industries naturally developed on the St. Lawrence; fishing, fur-trading, and trapping; (3) story of Marquette and Joliet. II. Clay-modeling: history of the development of pottery.

Winter Quarter: I. Story of La Salle in his attempts to establish a chain of forts in the country south of the Great Lakes, and to control the fur-trade. Development of trading-posts at Kaskaskia, Detroit, Vincennes, and Fort Dearborn. Special study—Fort Dearborn: (1) development of trading-post; (2) building of fort; (3) coming of pioneers; (4) growth of village. Construction work: a model of Fort Dearborn.

II. History of the age of metal.

Spring Quarter: Civics: In the evolution of Chicago the problems especially considered are: (1) streets and bridges; (2) water-supply; (3) drainage; (4) illumination; (5) government.

Mathematics.—In the correlation necessary to the general work, the following should be the outcome in arithmetical knowledge: (1) familiarity with the use of the multiplication tables through the 12's; (2) dry and liquid measure in connection with cooking; (3) linear, square, and cubic measures in the study of ventilation; (4) simple fractions and decimals with nature-study, manual training and cooking; (5) ability to add, subtract, multiply, and divide whole numbers, as rapidly as is consistent with the general development of the individual; (6) keeping simple accounts.

Reading.—The reading may be classified under two divisions:

I. Reading: (1) Information; i. e., *Heroes of the Middle West*, by Catherwood; *The Discovery of the Old North-west*, by Baldwin; *History of Chicago*, by Jennie Hall; *Stories of Industry*, etc. (2) Pleasure; i. e., fairy-tales, poems, *Jungle Book*, *Robin Hood*, *Siegfried*, etc.

II. Special, oral reading, and dramatic art: (1) dramatization of a part in the celebration of the yearly festivals. (2) Study of a group of celebrated horse-back rides in literature: (a) "John Gilpin's Ride;" (b) "How the Good News Was Carried from Ghent to Aix;" (c) "Sheridan's Ride;" (d) "Paul Revere's Ride." (3) Other poems and dramatic stories which develop the power to express intelligently the reader's interpretation of the author's meaning.

English.—Writing: The demands for writing are constant. Papers will be written for (1) records of (a) science work, (b) excursions, (c) cooking; (2) stories; (3) letters; (4) invitations; (5) expense accounts; (6) songs. The skill to be acquired through this demand is: correct use of capitals, periods, interrogation point, and quotation marks; the use of the apostrophe; some uses of the comma; simple paragraphing. Spelling: The plan suggested in the third grade is followed.

French.—Stories illustrating manner of living, customs, and festivals in France. Reading and playing: (1) dramatic anecdotes arranged by the fifth grade; (2) *Les souliers d'enfants*, child's French classic. Christmas work: writing, illustrating, and binding a story, song, or game. Much material will be taken from *Jeux, chansons et rondes populaire de France*.

German.—Instruction mostly oral; no textbook; no grammar taught. The children will learn a great many games, rhymes, riddles, songs, dialogues, names of familiar objects and actions. Conversation about pictures and stories.

Drawing and painting.—(1) Landscape: (a) Immediate landscape, showing weekly change; (b) typical areas visited. (2) Trees and plants—from these areas. (3) Illustrative work in history, etc. The technique is constantly improved, or there is dissatisfaction with the work.

Modeling.—Autumn Quarter: (1) Pottery, i. e., vases, jars, tiles, etc. (2) Tiles illustrating a scene in high relief from literature, etc. Excursions: Marshall Field's, and Burley's to pottery exhibits; Art Institute; Teco Pottery at Terra Cotta.

Winter Quarter: (1) In connection with prehension of food, each child will model some animal in the round. (2) Tiles for

window-boxes, the frames being made of copper or wood. (3) Jardinieres for the school.

Spring Quarter: The children will continue to model animals and illustrations on a large scale.

Woodwork.—Autumn Quarter: (1) Desk-boxes, fern-stands, doll furniture, etc., for Christmas presents, made from hard wood, in which the child meets the same problems of previous years. (2) A hot-bed frame. *Applied science*: a collection of woods representing the trees of the environment will be cut and polished to show graining. *Geography*: lumbering—(1) location of the great forests of the world; (2) life of the people; (3) preparation of wood for use. *Excursions*: Tobey's furniture store; Pullman car shops, Lyon & Healy's piano factory.

Spring Quarter: An oak screen; window boxes. *Applied science*: the tests for strength and elasticity of the familiar woods. *Excursion*: Field Columbian Museum to verify same tests.

Cooking.—Winter Quarter: (1) Sugar: kinds: where obtained; how manufactured; wide distribution in food; use in preserving fruit; canning. (2) Albumen: (a) solubility; (b) coagulation by heat; (c) cooking temperature; (d) comparison of its thickening power with that of starch and sugar. (3) Combination of white sauce and egg in boiled salad-dressing; cooking eggs, meat, and making meat soups. (4) Milk and its products; separation of fat from milk in making butter; action of acids and rennet on milk; study of curd in making cheese; comparison of curd with albumen; effect of high temperature.

Metalwork.—Winter Quarter: The fifth section has studied the use of metal in the beginnings of trade and barter. In the sixth section it is taken up as a material in which the children can express themselves socially and artistically. They will hammer from sheet copper such articles as bowls, trays, etc. *Science*: simple experiments in smelting. *Geography*: the source of the ores; location of mines; the life of the miner; preparation of metal for use.

Spring Quarter: The introduction of articles which call for different processes, as sawing, etc.; the application of decoration in (1) etching, (2) pierced work, (3) chasing.

Design.—Winter Quarter: The crafts in which the children engage form the basis of the design. The technical emphasis will be placed on the following points: form, proportion, and spacing; the decoration of the rectangle and the circle; straight lines and simple units used in borders.

Textiles (sewing).—Spring Quarter: Making pin-cushions, dust-cloths and bags; use of scissors; cutting straight edges and square corners; basting, running-stitch, and back-stitch, hemming and joining tape; button-hole stitch; feather-stitch; beginning of machine sewing. Beginning study of fabrics; selection of material for dust-cloth and bag; comparison of warp and filling threads; printed patterns and woven; tests for cotton, linen, wool, and silk. Special study of cotton plant, fiber, and fabric. Designing of bag, cutting, and use of pattern. Dyeing embroidery thread.

Music.—Rote song-singing; preparation for two-part singing; rounds; sight-reading exercises in various measure-rhythms with special emphasis on time problems; melodies written; original songs notated in blank books; rules for finding keynotes.

Gymnastics.—Special attention is here given to the development of carriage and poise. The exercises are such as to require finer co-ordination, thus differentiating the use of the finer muscles. Marching: (1) by file; (2) by column; (3) sideways, forward, march to command. *Apparatus:* (1) traveling on horizontal beams, bars, and ladders; (2) jumping (height); (3) jumping (broad). Plays and games: to lower reaction time between definite sense-perception and definite actions; example: "White and Black," "Plump Sack," "Ball Games," "Outdoor Recreation." Dancing.

DIVISION D

SECTION 7 (SEVENTH SCHOOL YEAR)

The work of the seventh school year will aim to give the child a large and general outlook upon his own country, by leading him to inquire into the causes and development of many of the phenomena about him.

Geography.—Geography will be closely allied with history. In the Autumn Quarter the history will be the Massachusetts settlements. By the use of pictures and descriptions, the class will study the soil, rivers, forests, hills, boulders, water-power, and climate of New England in their relation to the chief industries, manufacturing, fishing, and agriculture. The cause of the rocky soil will lead to a study of the glacial drift which covers all New England, and excursions will be made to Stony Island, where glacial marks and boulders can be seen, and the conditions will be applied to Massachusetts. The cause of the lakes, waterfalls, and general topography may also be traced to glacial action, and it will be seen that the location of many towns and cities has been determined by the available water-power.

Winter Quarter: The work will be North America as a continent. The study will begin with the area about Chicago—surface, soil, and industries. By the use of books and pictures, other sections of the continent will be studied, as the cotton belt, wheat and corn areas, mining regions, forest tracts, and prairie lands. Different sections of the country will be chosen by groups of children, who will work out characteristic occupations of each area, and later present to the class the result of their investigation. Visits will be made to industrial plants in or near the city, which will make clearer the work of the class. The work will necessarily include the study of the two principal highlands, the great central plain, and the principal river systems. Variations in the climate of the continent, and causes for the differences, will be considered.

Spring Quarter: A special study of the Hudson and Mohawk Rivers as an outlet for the lake region and middle West. The building of the Erie Canal, and the fine harbor of New York, will show causes of New York's greatness and importance. The story of the building of the transcontinental lines of railway will show the character of the country. Several of the largest cities of the continent will be located, and causes for location and growth noted. In the work on New York history constant reference is made to Holland, and, in order to make it more vivid, the general geography of Holland, including the sub-

jects of erosion, formation of islands, and transportation of soil, will be studied. During the entire year current geography will have an important place in the curriculum, and a period each week will be devoted to current events.

Nature-study.—The work in nature-study will aim to stimulate a spirit of inquiry as to the cause of present conditions, not only why certain things exist as they are, but why they are not otherwise. For much of the work, Wooded Island in Jackson Park will be studied as an area typifying larger growth and broader conditions, and the principles found there can be applied to other areas. Study and record meteorological conditions affecting the chosen area.

Autumn Quarter: Work will deal largely with out-of-door phenomena, with plants, animals, seasonal changes, and their relations to each other. Changes taking place in length of day, temperatures, amount of moisture in air; i. e., general change from summer to winter. Record these changes. Effect of seasonal changes upon animals and plants. Study of plants—annuals and perennials, including trees, shrubs, leaf-bud. Preparation of animals for change of season. What animals migrate? hibernate? burrow deep into the earth? What becomes of bees, worms, frogs, toads, ants and various other insects which appear in large numbers in the spring? How will the rabbits, squirrels, and fishes spend the winter? The children will be encouraged to discover answers to these questions.

Winter Quarter: A series of experiments suggested by the present life and experiences of the children. In work on modern conditions they seek the origin and development of changes which have taken place. The work is done with materials available to early settlers; the children work out some of the problems involved in reaching present conditions.

Soap-making: Leach lye from wood ashes, test properties, let it combine with oil to form soap. Value of different fats and common oil (suet, olive oil, scraps of fat from kitchen) in making soap determined by trial. The class will make hard soap by using caustic soda, and soft soap by using caustic potash. Visit soap factory.

Candles: The class will work out conditions under which oils and fats burn, and study different kinds of wicks as to volatilization of oil. Candles made of tallow and paraffin. Use of chimney. Study of convection currents. Discover need of oxygen and production of carbonic acid gas.

Pewter: Experiments in melting and mixing lead and tin in different proportions to make an alloy suitable for dishes. The children will originate methods, as far as possible, and perform experiments independently. Apparatus simple and largely made by children. Committees prepare exhibits of industries for museum.

Spring Quarter: Excursions to various places. Comparisons of changes observed in plants during fall and spring. Aquatic life taken into the schoolroom and closely watched. Record changes by writing, drawing, and painting. Collect plants for a wild-flower garden. At the places visited, the children will observe conditions of light, heat, moisture, and exposure under which plants grow, in order to approximate these conditions in their garden. The children will make a hot-bed. This involves a study of the principles of a hot-bed — heat generated by decaying matter, radiant energy changed to heat, south-sloping glass top, air space between double walls.

History.— Colonial history is chosen because it illustrates the dependence of man upon a definite geographic region. The conditions are simple, and give rise to problems which the children can make their own. The energy and industry of the colonists make this a period useful in forming ideals of character.

Autumn Quarter: Study of the Pilgrims. After the story of the Pilgrims in England and Holland, and the coming of the "Mayflower," pictures of the country around Plymouth will be shown, and the children will discover why the colonists chose that place for their home. Plymouth Harbor will be modeled in sand, and the town constructed on the sand-table, including Governor Bradford's house, the fort, the town brook, Leyden Street, Priscilla's home, and Burial Hill. The story will continue with Governor Bradford's "Journal" as a basis. The study of the New England home will include the houses and furniture,

fireplace and furnishings, preparing and serving meals, spinning, dyeing, weaving, and making candles and soap. During the study of Pilgrim life Longfellow's "Courtship of Miles Standish" will be read.

Winter Quarter: The study of Virginia colony begins with the plantation as contrasted with a New England farm. After describing the large farm, with its great fields of tobacco, many laborers, mansion house, river, wharf, and the ship from England with its freight of manufactured articles, the causes for the difference between the life in Virginia and New England will be seen. This will lead to the reasons for the introduction of slave labor, and the effects upon later history will be very simply traced. The causes of the colony and events connected with the history of its founding will be studied.

Spring Quarter: The work will be the study of New York. Hans Brinker furnishes a vivid picture of life in Holland, and the siege of Leyden illustrates the character of the people. After the story of Henry Hudson, maps will aid in seeing the commercial importance of the location secured by the Dutch in America. The characteristics of the colony will be studied and compared with those of New England and Virginia: occupations, classes of society, labor, education, government. A miniature New Amsterdam on the sand-table, and drawing of scenes in old New York, will illustrate the work. The *Legends of Sleepy Hollow* and *Rip Van Winkle* will be read, and the latter dramatized by the class.

Mathematics.—The number work of the year will be correlated with other studies. The four fundamental processes will be given special attention, and simple problems performed in fractions, both common and decimal. Averaging temperatures—long division; material for hot-bed—linear and square measure; garden—linear and square measure; material for looms and Christmas gifts—linear and square measure; recipes—addition, subtraction, multiplication, and division of fractions; dye for textiles—fractions and metric weights; supplies for school use; United States money; working-drawings; proportion.

Textiles.—The work in textiles will be a general outlook upon

the different materials used in the making of clothing, including the manner of production and preparation for use.

Autumn Quarter: The children will make Christmas gifts upon linen and hand-frames, of small bags, mats, or doilies, using cross-stitch in design where practicable.

Winter Quarter: The class will make a study of different fibers used in weaving, spin wool and flax on spindle and wheel, and study the processes used in weaving and dyeing employed by the early American colonists.

Spring Quarter: Before making rag rug, the children will work out their design, prepare and dye the material, and study the construction of the loom.

Cooking.—The work in cooking will follow closely the dishes used by the colonists, and, as far as possible, will be prepared with the limited means available to early settlers. Autumn Quarter: Canning and drying of fruit for winter use; preparation of dishes used by Pilgrims. Hulled corn, hasty pudding, brown bread, baked beans, cranberry jelly, and some typical southern colonial dishes will be cooked. Corn used will be ground by the children. A fireplace equipped with hanging crane will give opportunity for cooking over open fire. Vinegar made from apples, and study of acids and alkalies begun; visit to a vinegar factory. In connection with geography, cooking will include different ways of preparing cereals; value as a food; distribution; best conditions for growth; milling; visit to flourmill and bakery. A colonial luncheon will be served at Thanksgiving.

Manual training.—The use of woodworking is especially to reinforce class work, so far as correlation seems necessary and practical, and the work should be done with considerable skill. Autumn Quarter: Christmas gifts, hot-bed, loom, horn-book. Winter Quarter: plantation house typical of Virginia home; apparatus for experiments in science. Spring Quarter: some article for use at school or at home.

Oral reading and English.—The reading for the year will be chosen to supplement the work of the other classes. The literature will be poems of nature selected from Whittier, Bryant, Wordsworth, and other poets, Longfellow's "Courtship of Miles

Standish," Tennyson's "Revenge," Irving's *Rip Van Winkle* and *Legends of Sleepy Hollow*. *Rip Van Winkle* will be dramatized by the pupils and put upon the stage at one of the morning exercise periods. By means of written lessons in cooking, geography, and science, it is expected that the class will gain a free and correct use of English. Attention will be given to paragraphing, punctuation, and the principal parts of the sentence.

French.—Imaginary trip to northern France; dramatizing and illustrating for the fourth grade of stories and anecdotes relating to this trip; illustrations to be original drawings made by pupils; photographs and postal cards; reading of *Historical and Literary Cook Book* made by the seventh grade (based on *Le grand dictionnaire de cuisine*, by Alexander Dumas); playing of games and singing of songs and rounds taken from *Jeux, chansons et rondes populaires de France*.

German.—This grade uses Foster's *Geschichten und Märchen*. The children read and retell the stories, and learn to ask and to answer questions about them. Conversation about different subjects, if possible connecting science or history with the German. This class will learn to write German phonetically. Grammar: singular and plural of nouns.

Drawing, painting, and design.—The art for the year will fall into two divisions: expression work and design. The former will include records of excursions, nature-study, seasonal changes, and illustrations of work in geography, history, and literature. The work in design will involve the study of the fundamental principles of design as applied to the work in manual training and textiles. The principles of color will be consciously studied; i. e., use of complementary colors, and harmonies in tone and hue.

Music.—Songs read; a few rote songs; two-part songs; scale structure; signatures; original songs notated; writing of phrases selected from school songs. During the Autumn Quarter (1904) the children composed a song about the "Oak Tree." They had been studying oak trees in the vicinity of the school building and wished to write a song about it. The result was the composite work of the entire class.

Physical training.—Further improvement of volitional control through problems in new co-ordinations in free and apparatus work. Attention to posture. Special adaptation of running, vaulting, and jumping exercises to moderately increased demands. Preference for more active running games. Marching: (*a*) by file; (*b*) by column; (*c*) with change of space relation; (*d*) Wheeling (from place and marching positions). Apparatus: hanging on beams, ropes, rings, with leg and trunk exercises; climbing; high and broad jumping.

DIVISION D

SECTION 8 (EIGHTH SCHOOL YEAR)

The children are reaching out beyond the home to the business world. They do shopping. They are interested in their father's business, in values, and in commercial problems in general. The alien peoples around them have a meaning beyond mere contact. They are anxious to enter into geography and history of other countries to answer the questions that arise in the great city life around them. They are beginning to organize their æsthetic, and artistic tastes.

Geography.—Autumn Quarter: Eurasia; its relation to us through peoples represented here; means of communication with us; products known to us; our commercial relations; direction from us; latitude. Physical features: great mountain system, slopes, special study of mountains and glaciers (visit to Stony Island for glacier study). Tundras, forest belt, steppes, desert belt, characteristic product of each, effect of each on human life. Great regions of wheat, flax, mulberry, grape, grazing, lumbering, mining, manufacturing. A general picture of the great continent.

Winter Quarter: Europe: Topography, climate, industries. Great regions, as above; special study of the vine and its products; the olive culture; flax — growth, preparation, and manufacture — in Russia, Great Britain, France, Germany, and Belgium. The cork-oak and its products (visit cork exhibit at Field Museum). Mines; coal, iron, oil in western Europe and Russia; variety of

minerals in other countries. A study of silk is made in this quarter and carried into the next quarter. Transportation; special features, tunnels, and canals of France and Russia, and the great Kiel Canal. Southern and western Europe—great coast line, seafaring people, early discoverers and early explorers of the New World. Our commercial relations with Europe.

Spring Quarter: Asia: The same plan as for the winter work. The Russian-Japanese war, its cause and progress, will receive attention.

Chalk models, sand models, and maps, and drawing and painting are an integral part of the work.

Tarr and McMurry's books, Adams' *Commercial Geography*, Mill's *International Geography*, Carpenter's books, and *Modern Europe* will be used.

Nature-study.—Fall Quarter: I. *Landscape work*: Materials for work found in the area at the east end of the Midway; the outlook widened by excursions to Wooded Island and Beverly Hills. The change of seasons and its cause is the underlying thought of the year's work, observation and investigation being made through entire year. In this quarter observe the length of day, the course of the sun in the sky, the variation in heat and light, the records on charts and models; observe the effect on plant and animal life. Special study of bulbs; prepare tulip beds for the winter, plant bulbs for early indoor blooming. Study of runners; transplant and prepare strawberries for the winter. Preparation of animals for the winter. Cause of variation in heat and light; course of the earth around the sun; rotation on axis; angle of axis to orbit; use of sun-dial and skiameter.

II. *Applied science*: Cooking; study of fermentation; experiments in various ways of preserving; yeast, effect of temperature on it; products of fermentation; change of alcohol into acetic acid in making vinegar; experiments with baking-powder.

Winter Quarter: I. *Landscape work*: Change of seasons continued; weather charts; models showing course of sun; excursions to Wooded Island and Beverly Hills; lists of old birds' nests; animal tracks studied; preparation for the return of birds; making houses; preparing calendars, and aquaria for pond life.

II. *Applied science*: Cooking: Continued from the Autumn Quarter. Modeling: Making bird-houses. Mechanics: Study of simple machines in use at the school, at home, in stores, on streets; look for universal principles in machines; find lever in its many phases; construction of simple machines.

Spring Quarter: I. *Landscape work*: Study return of life in areas chosen; animal, bird, and flower calendars; plants—those in water, mud; those clinging close to ground; shrub, tree; problem each has to solve, and how it solves it. The bud is of special interest. Arbor and Bird Day is a feature of this quarter's work. Animals: Pond life in aquaria; life-history of frog in detail, material in pond at Beverly Hills.

II. *Applied science*: Garden—study of fertilization of flowers (through strawberry) and fertilization of soil.

Æsthetics.—Beauty of seasons, special attention to beauty of sky; paintings showing changes, sunsets, sunrises, color and form in nature; paintings mounted showing changes (weekly). Music: Songs of the birds, original songs about birds, listening to music about birds. Literature: Burroughs, *Winter Sunshine, Signs and Seasons*; Thoreau, Darwin, Riley, Lowell, Bryant, Whittier, Warner, (given more in detail under "English;" written work given under English also). Mathematics: work in connection with course of earth around sun. (Given in detail under "Mathematics.")

History.—Fall Quarter: The French in America; conditions, geographical, social, and political, that led to their coming; establishment of great fishing industries in the New World; follow Cartier along the St. Lawrence to Stadaconé and Hochelaga; fur-trade monopoly; De Monts, Champlain, and Pontreacourt in Nova Scotia; Champlain on the St. Lawrence; founding of Quebec and Montreal; summer fairs at Three Rivers, Quebec, and Montreal; trapper, soldier, explorer, missionary; churches and schools, seigniorage; spread into Great Lake region and Mississippi Valley; settlement of the valley; alarming the English. Comparison of life of French and English colonists; account for difference in ideas of government. French and Indian War; importance of result. Champlain's *Journal*, Parkman, Bourinot's

Canada, Baldwin's *Discovery of the Northwest*, and Louisiana Historical Society Papers are used; Mr. Catherwood's stories are read.

Winter Quarter: Growth of the English colonies—industrial development, home, hand manufacture, improvement in machines, growth into factory system; increase in agriculture, manufacture and commerce, lumbering, shipbuilding, manufacture of barrels, paper, linen, etc., trade with West Indies and Europe; Navigation Acts. The newspapers of the day can be consulted to show the kind and extent of the trade. Enforcing the Navigation Acts and taxation lead to the Revolution; result; the birth of nation.

Spring Quarter: Study the work of the civic improvement societies of our city; how to make our city beautiful. Take Athens as typical beautiful city. Greek history—education, games, music, art; their struggle for liberty as a parallel to that of the colonies just studied. The story of the *Iliad* is used as the foundation of this work.

Sand-modeling, map-drawing, clay-modeling, and painting help the work throughout the year. Woodwork and metal-work help in some phases of the work.

Mathematics.—Autumn Quarter: How business is done, business problems, values, individual, and co-operative buying; cost of window-boxes and bulbs for fall planting; percentage saved by buying in large quantities; percentage in simple business problems and science; use of common and decimal fractions; geographic problems, scientific and commercial; mensuration: areas of rectangle, parallelogram, trapezoid, hexagon, octagon; areas of and perimeters of flower-beds; drawing to a scale; estimating sizes and values; checking, or proving results; problems in variation of sunshine.

Winter Quarter: Problems of the Autumn Quarter continued. Circle, radius, etc.; ellipse, foci; horizontal, vertical, perpendicular lines; parallel lines and circles; angle; means of measuring angles, degree, use of compass and protractor. This work is done in connection with change of seasons, revolution of the earth around the sun. Generalized number; formal statement

of principles; mathematical language; equation. This is emphasized in the study of machines, as, the law of the lever, $P \times PA = W \times WA$, and in the study of angles

$$A \xrightarrow[\text{O}]{\text{C}} B \quad \begin{array}{l} \text{CO } B = 50^\circ \\ \text{CO } A = 180^\circ - 50^\circ \\ \text{CO } A = 130^\circ \end{array}$$

Spring Quarter: Work of the Autumn and Winter Quarters continued.

Modern languages.—*English*: Descriptions, narrations, and character sketches are written in history, geography, literature, and nature-study in prose, but occasionally in verse. The results aimed at are: a desire to express, a power to express clearly and beautifully what one has to tell, and on the formal side, control in writing, spelling, capitalization, punctuation, and an insight into the law underlying each. Letters will be written—correspondence with a Boston school. Records of observations on experiments—recipes in cooking are written.

French.—Original play—*French Explorers in America*—written and presented by the pupils; costumes and stage-setting to be the original work of the pupils, with the help of the art and textile departments; reading of *Historical and Literary Cook Book*; writing, illustrating, and binding of Christmas play, *La veille de Noël dans midi de la France* (*Dramatic French Reader*); reading lessons and grammar taken from the *Dramatic French Reader*.

German.—Complete story-book begun in the seventh school year; Guerber's *Märchen* and *Erzählungen*, Vol. I; method the same as in the previous year; dictation work increases; subjects for conversation from science, history, and geography, etc.; games, songs, etc.; presentation of a Christmas play; grammar—connection of certain forms of verbs with certain persons in present tense; some forms of strong verbs learned in the imperfect; use of genitive.

Reading.—Aim: to interpret readily the printed page, to acquire use of dictionary, and secure choice of definition; writing and dramatization of a story of colonial life just before the Revolution; reading of "Paul Revere's Ride," Whittier's "Fisher-

men," Burrough's "The Apple," parts of his "Signs and Seasons," and "Wake Robin," parts of Thoreau's *Excursions*; Riley's "Dream of Autumn," and other poems of the seasons; tree-myths.

Writing.—Writing is part of the work in every subject; the aim is for legibility and ease; the pen is used except for taking notes.

Spelling.—Oral and written, of words used; some attention to laws, as, doubling final consonant, changing *y* to *i*, and adding *e*, etc.

Drawing and painting.—Landscape, weekly, to show change in nature; history, geography, and literature call for expression in pencil and color. Compositions worked out from notes taken in pencil on excursions; studies of particular trees and flowers.

Music.—Two-part sight reading; songs read; a few rote songs; original songs notated; structure of major scale; minor and chromatic scale.

Gymnastics.—Training for increased dexterity and alertness; running, jumping, more active outdoor games. Apparatus: vaulting, climbing-rope, ladder-work, flying and traveling rings. Games: Dodge Ball, Captain Ball, Hornet's Nest, Touch Ball, relay races. Dancing.

Manual training.—Fall Quarter: Working-drawing, mechanical drawing, blue prints; concentrate on Christmas work.

Textiles.—Winter Quarter: Design and make costumes for dramatic work of year; Indian, English, and French colonial; designs stenciled for decoration of costumes on leather, cotton, linen.

Cooking.—Autumn Quarter: Study fermentation; can and pickle fruit; preserving by sugar, salt, spices, heat; fermentation in bread-making; yeast under microscope; products of fermentation, carbon dioxide and alcohol from molasses and yeast; change of alcohol into acetic acid in making vinegar; experiments with baking-powder.

Winter Quarter: Above work continued.

Metal-work.—Spring Quarter: Hammering of articles of social value, trays, bowls, candlesticks, etc., from sheet copper and

brass; designs original; decoration applied to some during last term, in etching, pierced work or simple chasing.

Design.—Winter Quarter: Emphasis on invention; composition of plant and animal forms.

Modeling.—Spring Quarter: Pottery, using Greek processes and colors; figures on jars to be original illustrations of scenes from Greek life.

DIVISION E

SECTION 9 (NINTH SCHOOL YEAR)

At the age of eleven or twelve the child feels less interest in activities for their own sake; he tries to relate them to the world-activities about him. In studying different phases of the development of the United States, such as the development of the railroad, he constantly refers to the present, and tries to interpret the significance of the present in the light of the past. This is the keynote of the work in history: the study of some of the social and economic questions of the past, to be able to interpret present-day problems. Geography and the physical sciences are studied in the same way—as means to the understanding of what is going on around us. The children are not yet able to generalize broadly, but are able to organize their knowledge in the solution of a problem.

By the time the children reach this Section, they are expected to be able to read longer assignments intelligently, to use the indexes of books in selecting references, to write legibly and with ease, and to have such a grasp of mathematics as will enable the children to use it intelligently as a tool.

History.—The history of the United States from the Revolutionary War to the present time, especially the geographical, industrial, and social phases of the expansion of the American people; the great westward movement which began with the early emigration to Kentucky and continued across the continent to the Pacific Ocean.

Autumn Quarter: The chief topic of the quarter is “pioneer life.” The child’s conception of life on the frontier is built up

from a study of such topics as the following: the migration of a family across the mountains to Kentucky; the cause of the migration; the possible routes across the mountains; the geographical factors involved in choosing a tract of land for a farm; the clearing and tilling of the land; and the necessity for some form of community life. Daniel Boone as a type of the early explorer and pioneer; the governmental problems presented to the pioneers and their solution; the settlement of Kentucky and Tennessee; the work of George Rogers Clark in the Revolution in the West; the settlement of the Northwest Territory; the Ordinance of 1787; the Ohio Company and other land companies in the settlement of Ohio. Reading of extracts from original sources. The writing of original stories of pioneer life, involving an accurate knowledge of frontier conditions. Required home reading, two of the following: Roosevelt, *The Winning of the West* (selected chapters); Thwaites, *Daniel Boone*; Churchill, *The Crossing* (first part); and Thwaites *How George Rogers Clark Won the Northwest*.

Winter Quarter: In this quarter the emphasis is transferred to the economic and industrial conditions in the West, and the territorial expansion; the demand for a market, and for the right to navigate the Mississippi; transportation, an important factor in the development of the West; the question of internal improvements; the Louisiana Purchase; the War of 1812, a war for commercial independence; the building of national and local roads; water transportation—steamboats, canals; the territorial expansion; the expedition of Lewis and Clark; Florida; the assimilation of Louisiana Territory; the growth of slavery questions; the Missouri Compromise; Texas; the war with Mexico; the Mexican cession. As in the Autumn Quarter, the class will write stories and records. Assignments of special reading will be given to individuals as well as to the class, and will be followed by oral and written reports. Phases of pioneer life will find expression in the work in clay-modeling. Required home reading, two of the following: Lighton, *Lewis and Clark*; Roosevelt, *Winning of the West* (selected chapters); Kinzie, *Wau Bun*; Brady, *The Conquest of the Southwest*; book reviews required.

Spring Quarter: The development of railroads; the effect of railroads and steamboats in the development of the trans-Mississippi country; the discovery of gold in California; the Oregon country; the events leading up to the Civil War; the economic conditions of the North and the South as affected by geographical factors; the Civil War; the great industrial revolution following the Civil War; the factory system; the industries of the North and the South. Excursions to several industrial plants, such as a steel plant, a farm, machinery works, railroad shops, etc.; a special study of the development of the textiles industry. Required home reading, two of the following: Parkman, *Oregon Trail*; Dana, *Two Years before the Mast*; Irving, *Astoria*; a biography of Lincoln; Hale, *The Man without a Country*; Taylor, *Eldorado*.

Geography.—Autumn Quarter: North America. Complete the study of North America begun in the eighth Section. Topography of the continent as a whole; the topographic divisions; climate of each; natural advantages of each, agricultural, mineral, commercial; state of development; the life of the people as affected by the geographic factors above mentioned; make a museum exhibit of resources of United States; the relation of the geography of each division to the history; a study of present-day Canada and Mexico. A study of the principles underlying the climate of the United States (see "Science"); daily weather maps of United States Weather Bureau; making of maps from data furnished by the Weather Bureau. Blackboard chalk-modeling to show topography; physiographic processes studied on field trips and in geographic laboratory; maps; pictures; lantern slides.

Winter Quarter: South America. The general features of the continent as a whole and the geographic importance of each; the topographic divisions; the climate; application of principles of climate studied in the Autumn Quarter; winds and rainfall; the resources, agricultural and mineral; the commercial relations; the political divisions; the state of the people as a reflection of geographic conditions; museum exhibit to show economic relations of Chicago and South America; the large purpose—to get

a conception of South America as a whole, topographic, climatic, industrial, commercial, social.

Spring Quarter: Eurasia. The same general plan as in the study of South America. The study of Eurasia will be continued in the eighth grade.

Nature-study.—Landscape: The class will make a series of weekly paintings showing the changes in the nature picture. The area selected for special study is the east side of Washington Park, north of Fifty-seventh street.

Autumn Quarter: Changes in vegetable growth as season ends; landscape coloring; the buds protected from effects of winter; healing of leaf scars; adaptations of different fruits for distribution; a study of the characteristics of our native trees (see "Manual Training"); drawing of characteristic forms of trees; excursion to Glen Ellyn.

Winter Quarter: Landscape drawings and paintings continued; characteristic forms of trees continued; the study of buds; the movement of sap in early spring and opening of buds.

Spring Quarter: Effect of varying temperatures upon growth; the forms of herbaceous vegetation as adaptations to conditions; color changes; the opening of buds; the opening of leaves; the structure and functions of leaves; excursions to Riverside, Willow Springs, and Dune Park.

Applied science.—Autumn Quarter: Hygienic physiology; digestion in relation to health; experiments; respiration; study of gases; proper breathing; circulation—the transference of nutrition and respiratory gases. Cooking; the preparation of foods; the application of heat; heat problems; experiments; generation of gases. Meteorology; constituents of atmosphere; effects of changes in temperature: winds, terrestrial and local; evaporation and precipitation of moisture; measurement of rainfall upon selected area; the amount recorded per acre for various crops; use of skiameter in measuring sunshine distribution.

Winter Quarter: General study of simple electrical problems; magnets and magnetism; making of simple apparatus; individual experiments working out qualitative results.

Spring Quarter: Food relations of plants; conditions of soil;

structure of plants studied in relation to getting food from the soil, the utilization of the carbon dioxide of the atmosphere, and the transference of food to the different plant tissues. Excursions to swamp regions, a flood plain (Riverside), hills and ravines (Willow Springs), and dunes (Dune Park); the plants of these places studied as to the food relations.

Mathematics.—The material for mathematics is selected, as far as possible, from the pupil's experience, and from problems arising in his school activities. In all cases enough practice is given to fix in the child's mind the mathematical principles and processes involved. Problems are selected in which the child feels the need for solution, or in which he sees a practical relation. Sufficient emphasis is given in terminology for a clear and intelligent use of it. The work may be divided, for the sake of outline, into (1) arithmetical processes, (2) geometrical constructions and applications, and (3) algebraic representations of arithmetical processes and equations.

Arithmetical processes: (1) Percentage and its applications to science, geography, history, and business and industrial questions; commercial discount, marking goods, buying and selling, taxes, insurance. (2) Interest and its applications; notes, bank discount, simple problems in compound interest. (3) Ratio and proportion as related to field- and shop-work. (4) Square root worked out through geometry and number, and methods reduced to formulated statements; applications to right triangle. (5) Paper-folding to work out geometrical methods for field-work. (6) Volumetric mensuration; boxes, bins, elevators, cylinders, cones.

Geometrical Constructions and Applications: (1) Working-drawings for manual training. (2) Representative drawings to scale of tracts of ground; of farms, maps, field measurements. (3) Designing for simple electrical and mechanical appliances. (4) The bisecting of a line, the construction of a perpendicular, the construction of angles and triangles, the bisecting of an angle. (5) Similar triangles; indirect measurements by the use of similar triangles; ratio and proportion through the laws of similar triangles (similar right triangles being used) English and

metric systems of weights and measures used. (6) Topographic work begun with home-made apparatus. (7) Location of buildings.

Algebraic work: (1) Syncopated algebraic laws of number and of mensuration formulated into equations by abbreviating words into letters, the resulting equations being read as sentences. (2) The use of the equation in percentage and interest. (3) Use of equations in the study of force problems. (4) Equations in ratio and proportion problems. (5) Numerous problems solved by both arithmetic and algebra.

Autumn Quarter: Percentage and interest; geometrical constructions; drawings; generalized number.

Winter Quarter: Applications of percentage; geometrical constructions; equations.

Spring Quarter: Squares and square root; ratio and proportion; indirect measurements; geometrical constructions; equations; algebraic solutions by the equation.

Manual training.—Autumn and Spring Quarters: Method: working-drawings for each construction; a careful study of plans and principles involved. Articles: apparatus for use in experimental science; articles for use in home or school; the pupil is to be given a choice when practicable. A study of the history and distribution of some important cabinet woods; characteristics of bark, branching, and leaves by which the trees may be recognized; grain and finish of woods; lumbering.

Textiles.—Spring Quarter: A study of the development of the textiles industry; weaving on Swedish looms; fabric analysis; collection and classification of characteristic fabrics; evolution of the loom; biographies of inventors of textile machinery; excursions to shops and factories with a view toward understanding American textile products.

Metal-work.—Winter Quarter: This section has had one term of work in metal, and therefore is able to design more intelligently for this material. Design will be applied to all pieces that are executed either in etching, pierced work, or chasing. The new process of soldering and riveting may be undertaken by those who show ability to carry out their designs. Also very simple brooches and belt buckles are possible.

Cooking.—Autumn Quarter: A study of different foods; classification of foods; (1) carbohydrates (starches and sugars), (2) fats, (3) proteids (lean meats, certain parts of vegetables, white of egg); application of heat to each of these food-principles—temperatures at which each is cooked; ways of transmitting heat in cooking: radiation, conduction, convection; simple elementary food analysis; tests for proteids, starches, fats; isolation of food-principles of certain common foods, e. g., starch from potatoes, proteids from meat and wheat flour, fats from meats and nuts; generation of gases used in lightening doughs: (1) yeast, (2) an acid and an alkali, such as sour milk and soda, (3) baking-powder; expansion of these gases by heat.

Modeling.—Winter Quarter: The use of clay as a medium for the expression of types studied in history. This is done in the Winter Quarter to follow the study of pioneer life in the Autumn Quarter. The making of pottery in the latter part of the quarter.

Modern languages.—English: Autumn Quarter: The study of formal grammar as such is not emphasized in the Autumn Quarter, but the writing of frequent papers and reports, and the correction of indicated mistakes, require a knowledge of the simpler rules of grammar.

Winter and Spring Quarters: Sentence—subject, attribute, and copula; to realize these three parts in every sentence. Predicate—attribute and copula; appreciation of this in every predicate, whether consisting of the pure copula and the attribute, or of one word containing both ideas. Appreciation of the verb as expressing the unity of subject and attribute. Meaning of limit, define, modify; then appreciation of simple subject, simple predicate, complex subject, complex predicate. Parts of speech and their properties as they come in the work with the sentences.

French: Making of historical and literary cook-book for the fifth and sixth grades (material adapted from Alexander Dumas' *Le grand dictionnaire de cuisine*). The first potatoes in France; bread-making in France; Benjamin Franklin and Parmentier; Norman apples, table linen, knives, forks, spoons, plates, coffee, tea, etc. Making and illustrating of menus for French Canadian luncheon. Reading of French history made by the eighth grade.

Malot, *Sans famille*; Bruno, *Le tour de France par deux enfants*, Reading lessons and grammar work taken from *The Dramatic French Reader*.

German: The class will read Guerber's *Märchen und Erzählungen*, Vol. I. A few of the more difficult songs will be learned. Conversation, games, riddles, and poems, to be used to develop a feeling for German life. Grammar: the present, imperfect, perfect, and future of simple verbs; use of genitive and dative.

Oral reading.—The intensive study of the following from the standpoint of oral expression:

Autumn Quarter: Browning, "Herve Riel"; Tennyson, "The Revenge;" Riley, "The Full Harvest" and "Autumn;" Whittier, "The Huskers."

Winter Quarter: Interpretation of Shakespeare, *Julius Cæsar*; Whittier, several of *Songs of Labor*.

Spring Quarter: Lowell, "The Vision of Sir Launfal;" Riley, "The First Bluebird" and "Summer Day;" Whittier, several *Anti-Slavery Poems*; Burroughs, "The Bees." (For list of home reading-books, see "History.")

Writing and spelling.—The records and papers presented are criticised from the point of view of English, of spelling, and of penmanship. They are then corrected and filed.

Drawing and painting.—Drawing and painting are forms of expression used in many phases of school work, but especially in nature-study, geography, history, and literature. The class will make a series of weekly paintings as records of the changes in the nature picture. The drawings and paintings are filed as they are finished, and furnish a basis for criticism of the rate of improvement in observation and technique. (See "Design.")

Design.—Autumn and Winter Quarters: Design in this section is based upon the experience which has been gained previously in the crafts, and hence will not be so closely connected with those subjects, but will be more in the form of exercises. Review of entire subject of design with creative exercises in line, dark and light, and color, illustrating the principles of rhythm, balance, and harmony.

Music.—Two- and three-part sight-reading; triads; interval studies; rote songs; original songs.

Gymnastics.—This is a period of rapid growth, developing new functions and large amounts of new tissue. Emphasis upon the larger and freer movements. Exercises for special development of heart and lung action. Care taken to avoid strain. Marching: Requiring greater concentration and alertness. Apparatus: Vaulting and more finished work in climbing, traveling, jumping; form insisted upon. Games: Requiring endurance and developing judgment; mount-ball, hand-ball, battle-ball, basket-ball; games outdoors and indoors. Dancing: One hour a week during the Winter and Spring Quarters.

DIVISION E

SECTION IO (TENTH SCHOOL YEAR)

History.—The European history immediately preceding the discovery of America will be presented according to the following outline: I. The period of discovery and the growth of geography: (1) Geographical knowledge previous to the fifteenth-century voyages; ideas of the Greeks and Romans. (2) The Crusades; their effect upon the routes of travel. (3) The journeys of the Polos; increase of geographical knowledge and the breaking up of routes of trade. (4) The invention of printing; books of the Middle Ages; mural paintings; effect of printing upon knowledge. II. Feudalism and chivalry: The growth of feudalism; the life of the people; the growth of the church. III. The guild system of labor contrasted with our modern factory system—Art: (1) The towns of the Middle Ages; their position in line of trade; trade guilds. (2) Florence and Nuremberg—typical expressions of the thirteenth century; the cathedrals of Europe, illustrations of Gothic architecture. (3) Results of the guild system of labor; compare with modern factory system.

Literature.—Aldrich, "Friar Jerome and His Beautiful Book;" Longfellow, "The Sermon of St. Francis," "Venice," "Monte Cassino," "Giotto's Tower," "Nuremberg," "Walter von der Wogelweid;" Arnold, "The Little Flowers of St. Francis" (selections); Henry Van Dyke, "The First Christmas Tree;" Tennyson, "Gareth and Lynette," "Sir Gallahad," "The

Lady of Shalott;" Lowell, "The Vision of Sir Launfal;" Scott, *Marmion* and Douglas, selections from *Ivanhoe*, *The Talisman*, and *The Monastery*; Shakespeare, *The Merchant of Venice* (interpretation by teacher). Home reading: Scott, *Ivanhoe*, *The Talisman*; C. M. Yonge, *The Little Duke*; Pyle, *The Story of King Arthur*, *Robert Hood*, *Men of Iron*; Lanier, *The Boy's King Arthur*; Gunsaulus, *Monk and Knight*; Pitman, *Stories of Old France*; Harding, *The City of the Seven Hills*; Brooks, *Historic Girls*, *Historic Boys*.

Geography.—As Eurasia is the scene of action in the history chosen for the year, it naturally becomes the center of the work in geography. This does not mean that the work will consist of a study of Eurasia only, but that the physiographic features of the globe will be studied with reference to this particular continent. Problems will arise whose solution requires some knowledge of physiographic processes. The autumn excursions will be the basis for this work. There will be, during the year, a general survey of the physical and climatic conditions of the globe, and an intensive study of Russia, Japan, England, Italy, France, and Germany. This selection is due to past or present historic interest.

Nature-study.—Autumn Quarter: I. The Garden. (1) The general oversight of the garden, with the specific work of mulching the beds, pruning the plants, and planting the cuttings of shrubs. (2) Insect depredations as shown on the garden plants; study of insect structure in relation to mode of life; special study of scales; use of compound microscope. II. Daily study of weather, using the government weather maps, with the color history of the season. III. Field work (throughout the year). Area affected by (1) running water, (2) waves, (3) wind. 1 (a) North Chicago—formation and growth of gully or ravine; (b) Thornton—a type of valley in later stage; a study especially of flood-plains and meandering stream; (c) tributary valley of the old outlet of Lake Chicago to Fraction Run; a rock ravine. (2) The south shore—eroding and building coasts. (3) Dune Park—sand dunes. These places will be visited in the order named. The pupils will study the development of the topography

of the region, the distribution of the plant and animal life found there, and the factors that control it. They will draw contour maps (see "Mathematics"), on which they will locate these life-areas. They will study the borderland which lies between the various vegetation areas, to emphasize the constantly changing conditions—physical evolution and its influence on life.

Winter Quarter: Meteorology continued. Condition of plant and animal life as shown in the garden.

Spring Quarter: (1) The garden. This quarter the tenth Section will (*a*) lay out the vegetable beds; (*b*) weed and fertilize the rose beds; (*c*) make a study of helpful and harmful insects, killing the destructive insects, spraying, etc.; (*d*) graft; (*e*) prune currant, blackberry, lilac, and other shrubs. (2) Meteorology continued.

Home economics.—Beginning with the homes of the Middle Ages, and instituting a comparison between them and those of the present day, the class will make a study of the modern house. The plan of the house and its furnishing; the methods of heating, ventilating, and lighting; the water supply, and the plumbing, will be considered, and studied experimentally. Visits will be made to buildings in process of construction. The study of the care of the individual home will lead to that of municipal house-keeping, and emphasis will be laid upon the responsibility of each household in helping to secure healthful conditions throughout the city, and in making the city beautiful.

Textiles.—Study of fabrics for clothing and for household use; classification of fabrics; some practice in fabric analysis; chemical tests for the different textile fibers; use of aniline dyes in the preparation of embroidery materials; preparation of maps, charts, and illustrative samples for the school museum to show the textile centers of the world, and regions of production and manufacture; history of the evolution of textile machinery.

Mathematics.—(1) Algebra viewed through arithmetic. By means of the equation solve simple arithmetic problems, force problems, laws of simple machines, and mensuration laws, lead up to work with purely formal equations, and justify all reasoning by the five laws of the equation. (2) Mechanical draw-

ing: Scale plans and elevations of accessible objects; scale drawings of manual training; representative drawings of accessible and remote tracts of ground; topographic work from data taken in the field; construction of ornamental designs; study of government land surveys. (3) Geometry: constructive, experimental, and quasi-demonstrative; relations of angles of polygons, shown experimentally and by measurement; construction of square corners on paper and in the field; running parallels and laying out curves; staking out lines at any angles with given lines; proof of principles by actual superposition of representative figures; laws of similar triangles and their uses in field-work.

Languages.—Pupils who have previously studied French or German will continue that study. Any who are not studying a modern language may begin Latin. The syntax of these languages, by conscious comparison and contrast, will be used to aid in the understanding of English syntax. Latin in this grade will not take the place of the high-school Latin, but will form a basis for it, consisting of simple exercises planned in accordance with Professor Hale's *First-Year Latin* lessons. Pupils are expected, before completing the work of this grade, to have acquired the habit of spelling correctly, skill to write legibly, and power to express their thoughts clearly in both oral and written language. Systematic instruction in grammar to this end will be a part of the work in English.

French.—Planning and carrying out of a French Canadian party, to be given to French Canadian children of the parish of Notre Dame, Le Père Bergeron, Chicago; writing of brief sketches of French history for the seventh Section; dramatizing of scenes from *La Chanson de Roland* (Professor Cenri David will assist in this work). Christmas work: writing of scenes from the *Life of Sainte Geneviève*; illustrations of Puvis de Chavannes used; Panthéon. Short reading-lessons from the life of Charlemagne, *Les Troubadours*, *Richard Cœur de Lion*, *Bertrand de Born*, *Bertrand de Ventadour*, *Le Saint Grael*. Reading-lessons and grammar work taken from *The Dramatic French Reader*.

German.—Grammar; the declension of nouns and adjectives, and the conjugation of verbs. This class will read Guerber's

Märchen und Erzählungen, Vol. II. There will be dictation once or twice each week, and the class will reproduce in writing stories told to them. The study of mediæval history will form a basis for some of the conversation. In addition, there will be games, dialogues, poems, and songs. In the Winter Quarter a play will be given.

Oral reading.—Subjects for oral reading are chosen from the general work in nature-study, history, and geography, from the subjects listed under "Literature," and from other orations and dramatic selections to be used in the morning exercise. The oral reading of subject-matter bearing on these general topics is used to give the class information not otherwise to be obtained. The study of oratory has for its object the training of the pupil to speak with purpose and power to an audience.

Music.—The work will include the study of major, minor, and chromatic scales, with their intervals, and the arpeggios of the common chords; the composition of melodies and their analysis; singing of unison songs; singing of part songs, introducing the melody in the bass, and, later part songs with conventional bass.

Drawing and painting.—Study of the landscape and other paintings in nature-study; drawings and paintings of scenes from the Middle Ages; study of mediæval scripts; making of short illuminated manuscript.

Design.—Continuation of the subject of pure design begun in the previous Section; study of historic ornament.

Modeling.—This will be used in connection with history and science. One quarter will be devoted to the making of pottery.

Gymnastics.—Training for co-ordinate action and form in execution, dexterity, and pleasure in action. The fundamental exercises of skill on apparatus. Outdoors: speed over short distance courses, running; endurance, long distance (moderately slow and fast). Plays and games: add antagonistics, team work; practice of the higher organized, in simplified forms. Outdoor recreation; "Running the Gauntlet."

Metal-work.—Hammer from sheet copper and brass articles of social use, such as trays, bowls, candlesticks, etc. Each child will design and execute his own article. Decoration either in

etching, pierced work, or chasing will be applied to some of these objects.

Woodworking.—Winter Quarter: The making of articles for use in the school. Spring Quarter: The making of articles for individual use, with emphasis upon staining, polishing, and care of wood. In drawing there will be (*a*) free-hand drawing for proportion and design; (*b*) reduction of these drawings to working-drawings; (*c*) blue prints.